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ABSTRACT

The effects of low and high levels of test-situation stress on creativity test performance were examined. A group of 60 fifth and six graders was randomly assigned to stress situations (high, low, and control) in which verbal subtasks of the Torrance Tests of Creative Thinking (TTCT) were administered. Verbal fluency scores from the TTCT demonstrated that the control group scored significantly better than both stress groups. The stress groups did not differ significantly. This data supported the proposition of a curvilinear relationship between stress and creativity performance. (Author)

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Effects of Test Situation Stress Upon Creativity Test Scores

by

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The purpose of this study was to examine the effects of low and high levels of test-situation stress upon creativity test performance. A linear relationship among stress levels was hypothesized. The low stress group would perform better than the control group which would in turn do better than the high stress group.

Wallach & Kogan (1965) have demonstrated that a creativity test administered on an individual basis at a low stress level produced significantly better scores than administering the test in a more traditional group situation. Vogel (1969) obtained essentially the same results. He found that subjects tested under low conflict conditions performed significantly better than subjects examined in a high conflict situation. Torrance (1966) has advocated making the creativity testing situation as nonthreatening as possible. His direct implication was that the lower the test situation stress the greater the probability of high scores on the Torrance Tests of Creative Thinking.

Conversely, Fleischer (1965) found no significant differences on creativity test scores between subjects tested under high stress and low stress conditions. Suedfield and Vernon (1965) supported these results when they failed to find a relationship between verbal originality and stimulus deprivation stress. Interestingly, they did hypothesize an inverted U relationship between stress and verbal originality. Hadley (1965) used the Minnesota Tests of Creativity and found a curvilinear relationship between stress level and creativity - thus supporting Suedfield and Vernon's (1965) hypothesis.

In summary, research has indicated that high stress situations have a debilitating effect upon creativity test scores. Data concerning the effect of low levels of stress upon creativity test performance was contradictory. This study was conducted to help clarify this contradictory information.

Method

The subjects were sixty fifth and sixth graders from the laboratory school of a New England state college. They were randomly assigned to one of three groups: high stress, low stress and control. The low stress subjects were tested individually in a "game like" situation after good rapport was established between subject and tester. The high stress subjects were tested in a group that was conducted by two testers and the assistant principal of their school. They were told that their teachers, parents and principal would see their scores and make judgements about how creative they were. Their responses and behavior were constantly monitored by the three adults present moving among them while they wrote their answers. The control subjects were tested in a group following the test manual exactly.

Four subtests from the Torrance Tests of Creative Thinking Verbal Form A formed the dependent variable. These subtests were Asking, Product Improvement, Unusual Uses and Just Suppose. From these tests total fluency and originality scores were computed for analysis. In addition IQ scores were obtained from school records.

All groups required approximately forty-five minutes to complete the four tasks. Testing conditions were generally very good.

Results

The main outcomes of this study are displayed in Table 1 (to be handed out). A one-way analysis of variance indicated no significant differences among the three groups for originality. For verbal fluency an anlaysis of variance found that the control group scored significantly ($p<.05$) higher than the high stress group. The low stress group likewise was significantly ($p<.05$) below the control group's scores. There were no differences between the high and low stress groups' fluency scores.

The Pearson correlations between IQ and fluency and IQ and originality were interesting. The fluency - IQ correlations for the low and high stress groups were rather low (.23 and .18) while the control group's r was much larger (.48). The originality - IQ correlation demonstrated the same pattern. The low and high stress groups' correlations were low (.16 and .18) while the control group's r was much larger (.38).

Discussion

The major development of special interest in this investigation was the relationship of fluency scores among the stress groups, as Table 1 illustrates. This relationship was clearly curvilinear. The low and high stress groups performed much more poorly than the control group on both fluency and originality. Only the differences in fluency scores were significant. With the conflicting research on the effects of stress on creativity cited previously, the data reported here lends support to Fleischer's (1965) and Suedfield and Vernon's (1965) results. They found that there were no differences in the low and high stress groups' performance and that extremes in stress level could decrease creativity. Wallach and Kogan's (1965) implication that the less test-like the situation the higher the creativity score, as well as our original hypothesis, must be rejected in favor of the curvilinear relationship advocated by Hadley (1965) and Suedfield and Vernon (1965). It seemed that a moderate level of stress may be conducive to creative responding while too much or too little stress could depress creativity scores.

The IQ - fluency and originality correlations may provide a partial clue as to why this curvilinear relationship was found. Wallach (1968) and Paxson and Boyce (1965) stated that the Torrance tests actually examined verbal intelligence and/or general intelligence. If one leans toward this argument, even with reservations, one finds that the differences in Pearson correlations between the low and high stress groups and the control group could be explained by the partial impairment of this intellectual functioning due to the extreme levels of situational stress. This impairment may account for at least part of the depression of scores for the two experimental groups.

To reiterate, the main result of this investigation was the curvilinear relationship among verbal fluency scores on the Torrance Tests of Creative Thinking. This fact indicated that too little or too much stress on a creative testing situation could harm one's score, while a moderate amount of stress was possibly beneficial. The correlations

between IQ and fluency and IQ and originality for the three groups indicated that the two experimental levels of situational stress may have somewhat impaired an intellectual ability needed to score well on the Torrance Tests. The depression of this intellectual function may be one clue as to why the scores were lower for the two experimental groups.

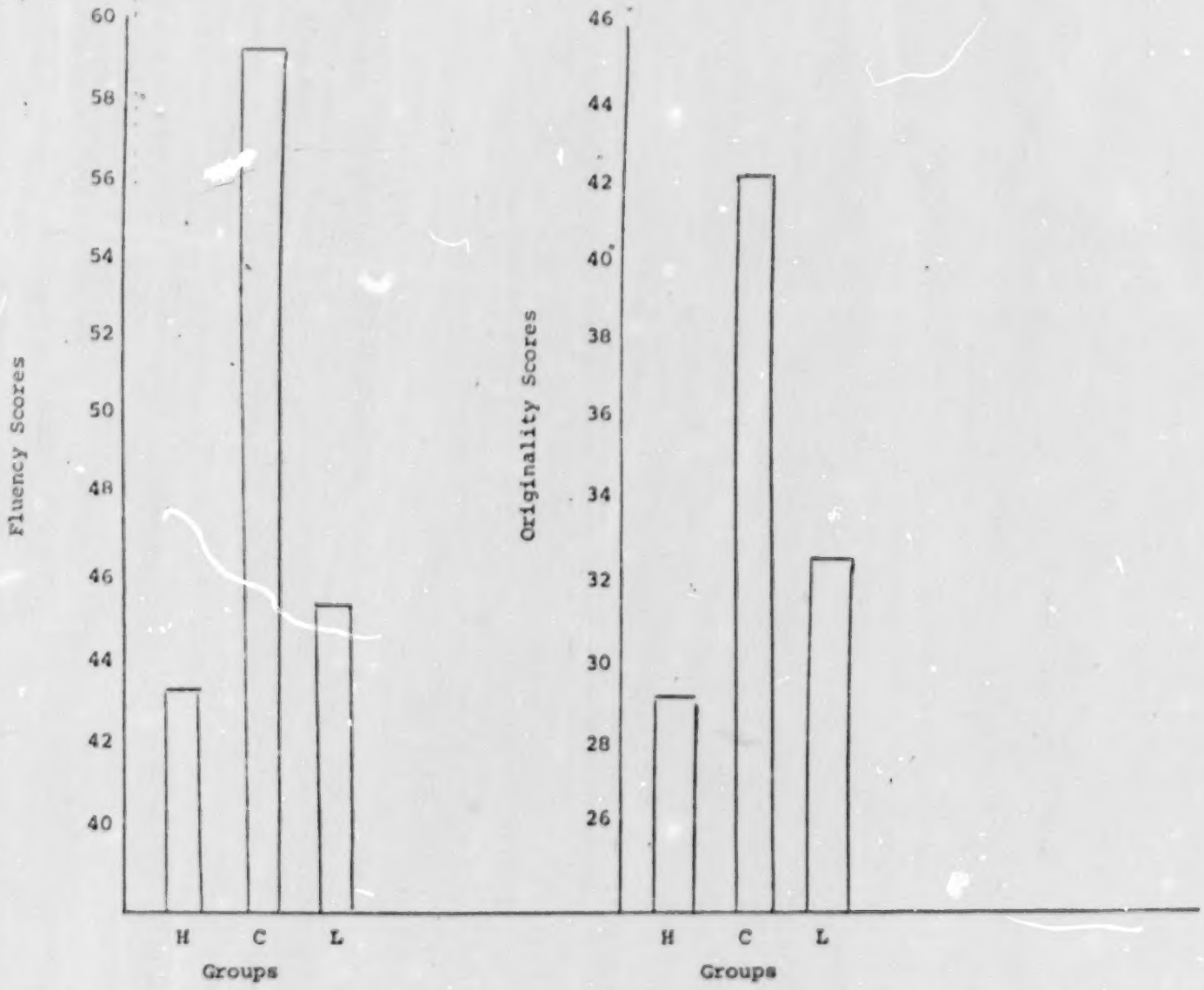

Table I: Mean Fluency And Originality Scores For The High Stress, Control And Low Stress Groups

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